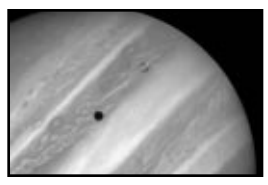
National Aeronautics and Space Administration
Lyndon B. Johnson Space Center
Houston, Texas

Perfect pickup

The STS-79 astronauts document in pictures the first crew exchange on orbit. Photos on Page 3.



Io shadow

The Hubble Space Telescope captures a rare view of Jupiter's moon Io. Story on Page 4.

Space News Roundup

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Space station moves forward with sequence

By Kyle Herring

NASA and its international partners are moving forward with a revised assembly sequence for the International Space Station that maintains major program milestones, including the first element launch, initial human habitation and the completion of U.S. assembly.

Approval of the revised assembly sequence came during a periodic Incremental Design Review held last month at JSC, in which all international partners were represented.

The first four assembly flights are not affected by the latest approved assembly sequence. These include launching the Functional Cargo Block in November 1997, Node 1 in December 1997, Service Module in April 1998 and initial human habitation flight in May 1998. Also not affected is the completion of U.S. component assembly in June 2002.

The revised assembly sequence factors in modifications proposed during the most recent IDR earlier this year, which identified changes in downstream flights dictated by changes to the Russian assembly sequence. These changes will allow Russia to sustain current Mir operations in parallel with ISS development, including the redesign and rescheduling of hardware from Zenit launches to Proton, space shuttle, or Soyuz launchers.

The new assembly sequence also accommodates rephasing several other assembly flights, including the second U.S. Node, Japanese Experiment Module and European Space Agency Columbus Orbital Facility. Deferring the Node and JEM flights, as well as rephasing the science on early utilization flights was necessary based on power demands, weight to orbit and on orbit crew

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NASA Photo

At Kennedy Space Center, technicians mate the Wake Shield Facility free-flyer to its carrier. WSF-3 is one of two primary payloads on STS-80. *Columbia* is scheduled for liftoff on the final shuttle flight of 1996 around Nov. 8 from Launch Pad 39B.

Committee offers safety tips

Employees soon will have the opportunity to learn safety and health tips and techniques from booths, seminars and tours designed to make JSC's Safety and Total Health Day educational and fun.

The planning committee is in the final preparations for this year's Oct. 23 stand-down for safety and health. More than 50 booths will be set up to provide safety and health information. Seminars and videos will be scheduled throughout the day for employees to attend or watch on the JSC Television Distribution System. A concert by Max-Q is scheduled for the noon hour and the new Emergency Operations Center will be open for tours.

Other events are scheduled through out the day in a variety of locations. A catalog of the day's activities will be distributed to

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Columbia to feature double free-fly payload

By James Hartsfield

Despite a slight delay in its move to Kennedy Space Center's Vehicle Assembly Bldg. this week, *Columbia* remains on schedule for launch as early as Nov. 8 on STS-80, carrying the Wake Shield Facility and the ORFEUS-SPAS astronomy satellite.

Columbia was rolled over to the VAB mid-week to be mated with itssolid rockets and fuel tank. The move had been postponed by a couple of days to allow technicians time to replace two window panes. The two forward-most panes—among the most-flown windows on the shuttle fleet—were replaced as a conservative measure while engineers complete an analysis of how hazing and pitting affects windows that have been used on a high number of flights.

The analysis, although in a preliminary stage, seems to indicate windows that have garnered a large amount of hazing from many flights could be more susceptible to fractures. To be prudent, managers decided to replace the two window panes on *Columbia* as the engineering study progresses.

The problem deals only with the outermost window pane. Each shuttle window also has a 1.3-inch thick center pane and a half-inch thick inner pane that are unaffected.

Columbia is now expected to roll to Launch Pad 39B next week. A launch on time at 1:47 p.m. CST Nov. 8 would lead to a landing at about 6:30 a.m. CST Nov. 24.

Meanwhile, in KSC's Bay 3 shuttle processing hangar, work continues to ready *Atlantis* for launch on STS-81, the fifth Mir docking flight, in mid-January 1997. Technicians this week completed removal of the auxiliary power unit that had failed during STS-79 and sent it back to the manufacturer for analysis. Upcoming work will include the removal of the main engines from STS-79 beginning Oct. 24 and the installation of new engines beginning Nov. 5.

An investigation was completed this week on the combination wrench found inside the forward skirt of the right-hand STS-79 solid rocket booster. The investigation team found that the wrench may have been left by booster assembly workers with USBI Co. As a result of the investigation, the process for controlling tools used by USBI during assembly work will be totally renovated with much stricter procedures than were previously in place. In addition, the pre-launch procedures for inspecting areas of the boosters for tools or other debris will be enhanced to allow better lighting and more detailed checks.

Elsewhere, work continues to ready *Discovery*, now in the Bay 2 processing hangar, for a February 1997 launch on STS-82, the second Hubble Space Telescope servicing mission. Plans call for installation of the main engines next week and installation of the left-hand orbital maneuvering system pod Oct. 21.

STS-80 COLUMBIA

Long hours, variety of experiments keep Blaha busy

By Natasha Calder

Working, exercising and keeping up with news back on Earth, Cosmonaut Researcher John Blaha is having no trouble keeping busy on board the Russian Mir Space Station.

Now nearly a month into his long-awaited mission aboard the Russian space station, Blaha doesn't waste a minute of his day, which typically begins around 7 a.m. and runs until about 1-2 a.m.

"In the middle of that day, about an hour to an hour and a half twice a day, is physical exercise," Blaha said in an interview earlier in the week. "And when I'm not eating and doing those types of things, we're conducting an awful lot of experiments, both human physiology experiments, life science and microbiology and material science experiments."

Blaha said that in everything he does, he keeps one eye on his mission, and the other on the future and the upcoming International Space Station. Blaha said his primary mission is working with the Russians, learning from their experience in long-duration space flight, paying attention to its effects on the body and conducting the experiments he has been trained to conduct.

MIR-22 BLAHA

"I'm trying to absorb it all so that we can apply it to our work with our International Space Station we're trying to build with them, the Japanese and the Europeans," Blaha said.

Blaha has found no trouble in learning to work with his Mir 22 crewmates, Commander Valery Korzun and Flight Engineer Alexander "Sasha" Kaleri, despite the fact that he spent little time in training with the two cosmonauts.

"I know Valery and Sasha now pretty well, and their helping me out a lot," Blaha said. "It seems like about once every hour they're showing me a new thing. They've made me feel very much a part of the crew."

The experiments on which Blaha and his crewmates have concentrated over the past few weeks include the Greenhouse experiment and the Biotechnology System, both of which focus on growth processes in microgravity.

Blaha already has harvested 12 of the dwarf wheat plants that were planted only 75 days ago as part of the Greenhouse experiment. The experiment is intended to study how the space environment effects plant

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JSC kicks off CFC this week

JSC will kick-off the 26th annual Combined Federal Campaign on Tuesday, establishing a goal of $460,000 for 1996. The theme for this year's 1994 CFC of the Texas Gulf Coast, of which JSC's efforts are a part, is "Look into Your Heart."

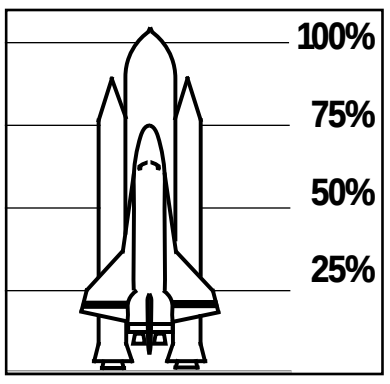
The CFC, which runs through Nov. 15, is a once-a-year voluntary fund-raising effort that gives JSC employees a chance to contribute to local, national and international health and welfare charities.

Last year, JSC employees gave $473,000 of the $2.3 million contributed by federal workers throughout the Houston area. This year's overall CFC goal is $2.4 million.

"I know that JSC employees care, and it is my sincere hope that you will contribute as liberally as possible to this deserving combined campaign," said JSC Director George Abbey. "In making this decision, it is good to remember that you will not only be helping your community to help itself, you may be helping a neighbor or loved one when they need it most."

The CFC supports a great number of worthwhile organizations including two of special interest to JSC employees—The NASA College Scholarship Fund and Space Family Education. The scholarship provides educational assistance to selected NASA dependents and Space Family Education provides quality care for children of JSC employees.

CFC Coordinator Teresa Sullivan said there are some additional incentives this year for employees who make a pledge. Everyone who contributes will receive a heart sticky lapel pin. Those who pledge one hour's pay per month will receive a heart sticky lapel pin and a key chain with light. Those who pledge two hours' pay will earn a lapel pin, key chain and a thermal mug. Those who pledge $600 or more per year will receive a lapel pin, key chain, thermal mug and a personalized certificate of appreciation. In addition, those employees contributing one hour's pay per month will be eligible for the drawing for a reserved parking space for a month. One contributor's name will be drawn each week during the campaign.



1996 GOAL: $460,000

CFC

Use credit card for travel cash

It's been 10 months since the JSC Travel Accounting Office instituted the American Express Automated Teller Machine Cash Advance Program, but employees aren't yet taking full advantage of the system.

"We are advocating the use of this program for all employees who require a cash advance for official travel purposes and we encourage all traveling employees to use their American Express Card for travel advances," said Deborah Conder, chief of the Payroll, Labor and Travel Accounting Branch. "The American Express Cash Advance Program is easy and convenient to use."

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